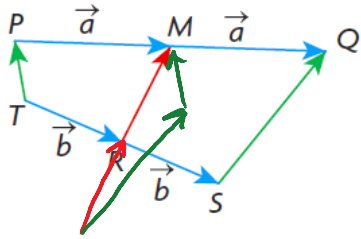


P292_15

October-01-12
5:40 PM

6.2 p.292

15. M is the midpoint of line segment PQ , and R is the midpoint of TS . If $\overrightarrow{PM} = \overrightarrow{MQ} = \vec{a}$ and $\overrightarrow{TR} = \overrightarrow{RS} = \vec{b}$, as shown, prove that $2\overrightarrow{RM} = \overrightarrow{TP} + \overrightarrow{SQ}$.



$$\begin{aligned} \overrightarrow{RM} &= \overrightarrow{RS} + \overrightarrow{SQ} + \overrightarrow{QM} \\ \overrightarrow{RM} &= \vec{b} + \overrightarrow{SQ} - \vec{a} \quad (1) \end{aligned}$$

also

$$\begin{aligned} \overrightarrow{RM} &= \overrightarrow{RT} + \overrightarrow{TP} + \overrightarrow{PM} \\ \overrightarrow{RM} &= -\vec{b} + \overrightarrow{TP} + \vec{a} \quad (2) \end{aligned}$$

add (1) + (2)

$$2\overrightarrow{RM} = \cancel{\vec{b}} + \overrightarrow{SQ} - \cancel{\vec{a}} + \cancel{-\vec{b}} + \overrightarrow{TP} + \cancel{\vec{a}}$$

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